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Abstract

PROBLEM TO BE SOLVED: To provide a metallic layer forming method by which superior step coverage can be obtained by utilizing an atomic layer vapor deposition method, a desired resistance and electrical conductivity can be decided easily, and then, the diffusion of oxygen can be prevented, and to provide a semiconductor element equipped with a metallic layer formed by the method as a barrier metal layer or the lower or upper electrode of a capacitor. SOLUTION: In this metallic layer forming method, atomic layers are alternately laminated upon another by alternately injecting source gases of a reactive metal A, nitrogen N, and an element B for amorphous coupling of the metal A with nitrogen N into a chamber by the atomic layer vapor deposition method. The semiconductor element is provided with a metallic layer formed by this method as a barrier metal layer, lower electrode, or upper electrode.